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ARMORED MEDICAL RESEARCH LABORATORY

FORT KNOX, KENTUCKY

INDEXED

Second Partial Report On

PROJECT NO. 5-12 - Seating Designing and Placing in Relation
to Fatigue

SUBJECT: SEATS FOR TRUCK (4 x 4) $\frac{1}{4}$ TON (PEEP)

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ments Section, AGF for approval and execution.

Project No. 5-12

17 February 1945

ARMORED MEDICAL RESEARCH LABORATORY
Fort Knox, Kentucky

Project No. 5-12
SPMEA 749.2-12

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SEATS FOR TRUCK (4 x 4) $\frac{1}{4}$ TON (PEEP)

1. PROJECT NO. 5-12 - Seating Designing and Placing in Relation to Fatigue. Second partial report.

a. Authority: Letter Commanding General, Headquarters Armored Force, Fort Knox, Kentucky, File 400.112/6 GNOHD, dated September 24, 1942.

b. Purpose: To determine the physiological adequacy of seats in the $\frac{1}{4}$ Ton Truck (Peep) and to indicate desired improvements.

2. DISCUSSION:

Complaints of excessive fatigue and of backache are common from drivers and passengers of $\frac{1}{4}$ Ton and other trucks after approximately one hour's driving over improved roads and after even shorter periods of driving cross-country or over rough roads. Decreased efficiency and often disability are the direct result of such back fatigue. Medical attention with hospitalization and specialized treatment is not uncommonly required. In one recent hospital survey, 90% of low back injuries seen from one service were from this service's truck organizations. Much can be done to improve this situation by furnishing more adequate seats.

3. TEST PROCEDURE:

The (4 x 4) $\frac{1}{4}$ Ton truck was driven over a variety of terrains with and without extra passengers. Subjective reactions were obtained at various time intervals with standard seats and seats modified by addition of padding, altered shape and size of back, bucket seats, etc, Spring cushions, hair felt pads and sponge rubber pads of various thickness were also compared. Men from training and combat areas were interviewed.

4. CONCLUSIONS:

a. Driver and passenger seats of the $\frac{1}{4}$ Ton Truck (Peep) do not provide sufficient anchorage, support or cushioning to protect occupants adequately from low back injury when truck is travelling over moderately rough terrain. Over rough terrain, vibration and shock to the occupants is severe.

b. Vibration and shock can be reduced by (1) increased padding of seat cushion and back rest, (2) improved design of back rest to insure better anchorage and fit.

5. RECOMMENDATIONS:

a. That all seat cushions for Truck, $\frac{1}{4}$ Ton be two (2") inches of sponge rubber or equivalent.

b. That backs of driver and front passenger seats be of shape and size shown in Fig. A, and have a minimum cushioning of one and one quarter ($1\frac{1}{4}$ ") inch sponge rubber or equivalent.

c. That back of rear passenger's seat have minimum of one and one quarter ($1\frac{1}{4}$ ") inch sponge rubber or equivalent and be designed to provide anchorage as nearly equivalent to that of driver's seat as is possible within space limitations.

d. That padding be covered with water-proof covering of otherwise suitable characteristics.

Conclusions and recommendations are concurred in by Headquarters, Armored Center, F. W. Makinney, Colonel, GSC, Chief of Staff.

Submitted by:

Major Lester B. Roberts, SnC

Captain Wendell E. Mann, MAC

APPROVED

Willard Machle

WILLARD MACHLE

Colonel, Medical Corps
Commanding

1 Incl. - Fig. A.

